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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/944,478	08/31/2001	Tyler A. Lowrey	INTO-0006-US (P12499)	1547

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EXAMINER	
QUACH, TUAN N	
ART UNIT	PAPER NUMBER
2814	

DATE MAILED: 10/07/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/944,478	LOWREY, TYLER A.	
	Examiner	Art Unit	
	Tuan Quach	2814	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(e). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 August 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10, 31-37, 39 and 40 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10, 31-37, 39 and 40 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
 If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) <u>0803</u> | 6) <input type="checkbox"/> Other: |

DETAILED ACTION

The amendment after final filed August 29 has been permitted entry. Claim 6, 31, 32, 37, 39, 40 are amended. Claims 1-10, 31-37, 39, 40 are pending.

The Information Disclosure Statement (IDS) filed August 25, 2003 has been received.

The previous indication of allowability of applicable claims is hereby withdrawn in view of the newly submitted prior art from the IDS above. New rejections follow.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-6, 31, 32 are rejected under 35 U.S.C. 102(a or e, and b, respectively) as being anticipated by Lowry et al. or Harshfied '287.

Lowry et al.(WO 00/57498) teach forming base contact 112, covering with layers including insulating layer 124 and forming electrical connection 130a/130b therethrough to the base contact, depositing insulator 140 in the connection, forming phase change material 250 thereon connecting to contact 112 through contact 130a/130b. See Figs. 5A-5J and the corresponding description, page 12 line 15 to page 16 line 20. Regarding the contact being cup-shaped, e.g., claims 5, 6, 31, 32, such would

correspond the alternative embodiments shown in '498, page 25 line 16 to page 26 line 5, Figs. 9 and 10b, wherein the cup-like shell 450 is shown.

Harshfield '287 teaches cup-shaped or annular connection 124 through insulator 110, the connection contacting conductor 106 and phase change 130. The filling of the connection 124 with insulator, e.g., layer 122, is also shown. See Figs. 3-8, column 3 line 30 to column 5 line 21.

Claims 7-10, 33-36, 37, 38, 40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lowry et al. or Harshfield '287 taken with Harshfield '720.

Lowry et al. are applied as above and do not recite the additional electrode (the "lower electrode" or "second cup-shaped connection layer" in applicant's terminology) under the phase change material and the sidewall spacer.

Harshfield '720 shows the provision of conductor 42 connecting to semiconductor structure 60, forming phase change element 20 including the intervening electrical connection 46 on the conductor 42 including the provision of insulator spacer 44 permits minimize active area of contacting between the electrode and the phase change material. See column 2 lines 11-25, Fig. 3, column 3 line 40 to column 5 line 13.

Accordingly, it would have been obvious to one skilled in the above processes to have employed a two portion electrode including wherein the area of contacting with the phase change material in the upper electrode (the so-called lower electrode by applicant) can be reduced using sidewall spacers as taught by Harshfield.

Applicant's arguments with respect to claims 1-10, 31-37, 39, 40 have been considered but are moot in view of the new ground(s) of rejection.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to examiner Quach whose telephone number is 703-308-1096. The examiner can normally be reached on M - F from 9 to 5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor Wael Fahmy can be reached on (703) 308-4918. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9318 (Before Final) and (703) 872-9319 (After Final).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

A handwritten signature in black ink, appearing to be 'th' or similar, located in the bottom right corner of the page.